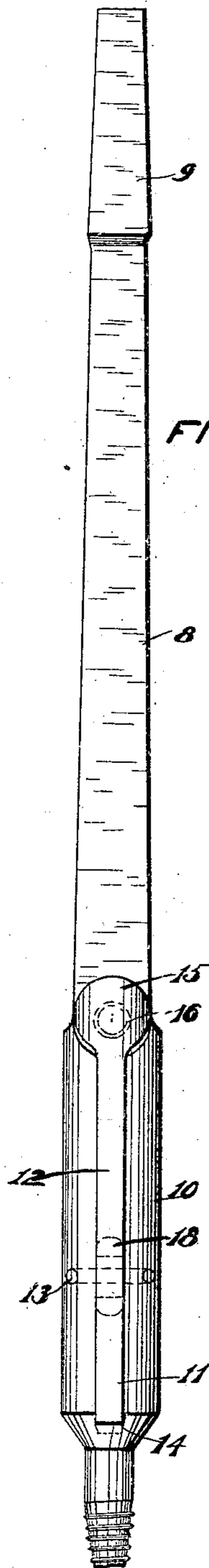
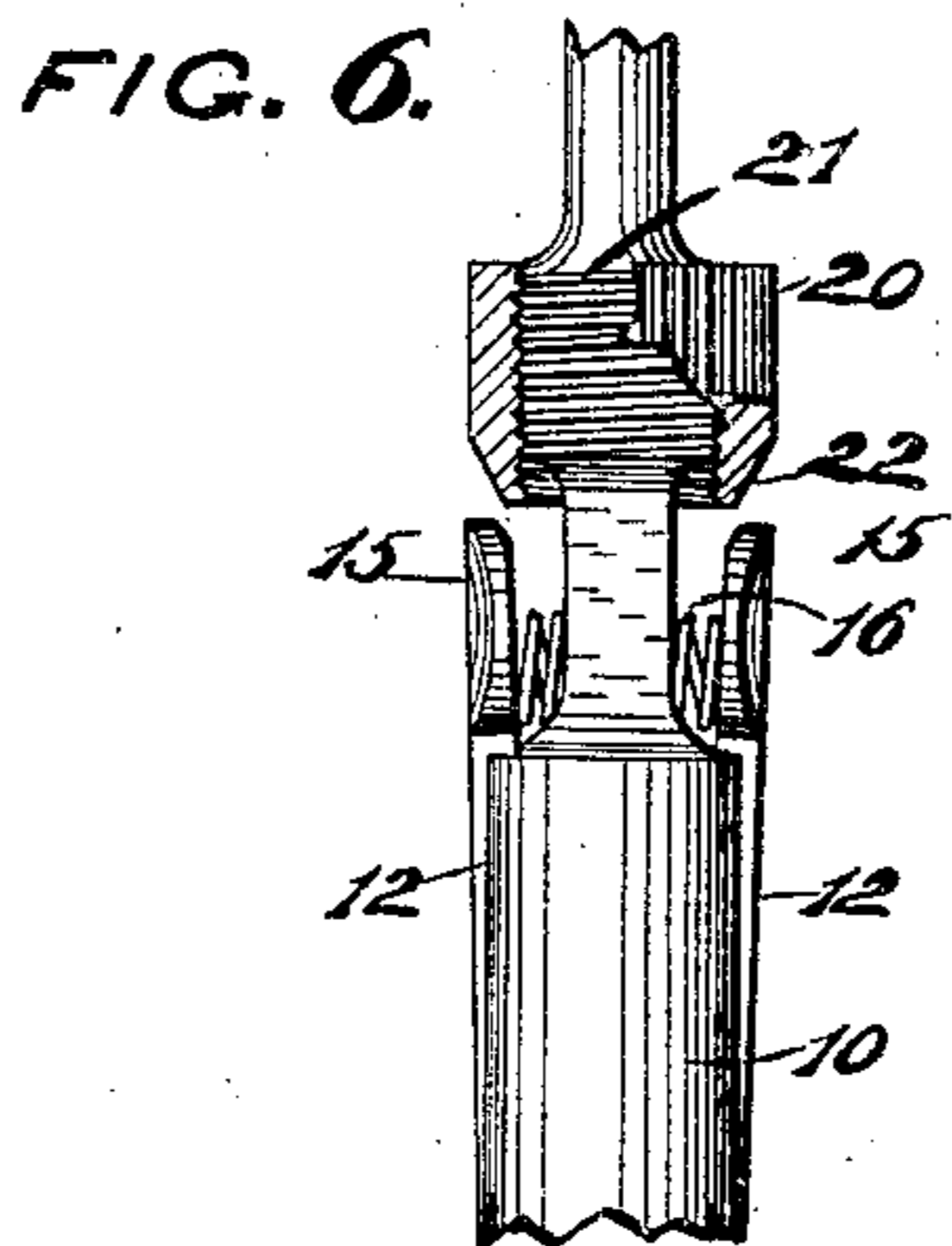
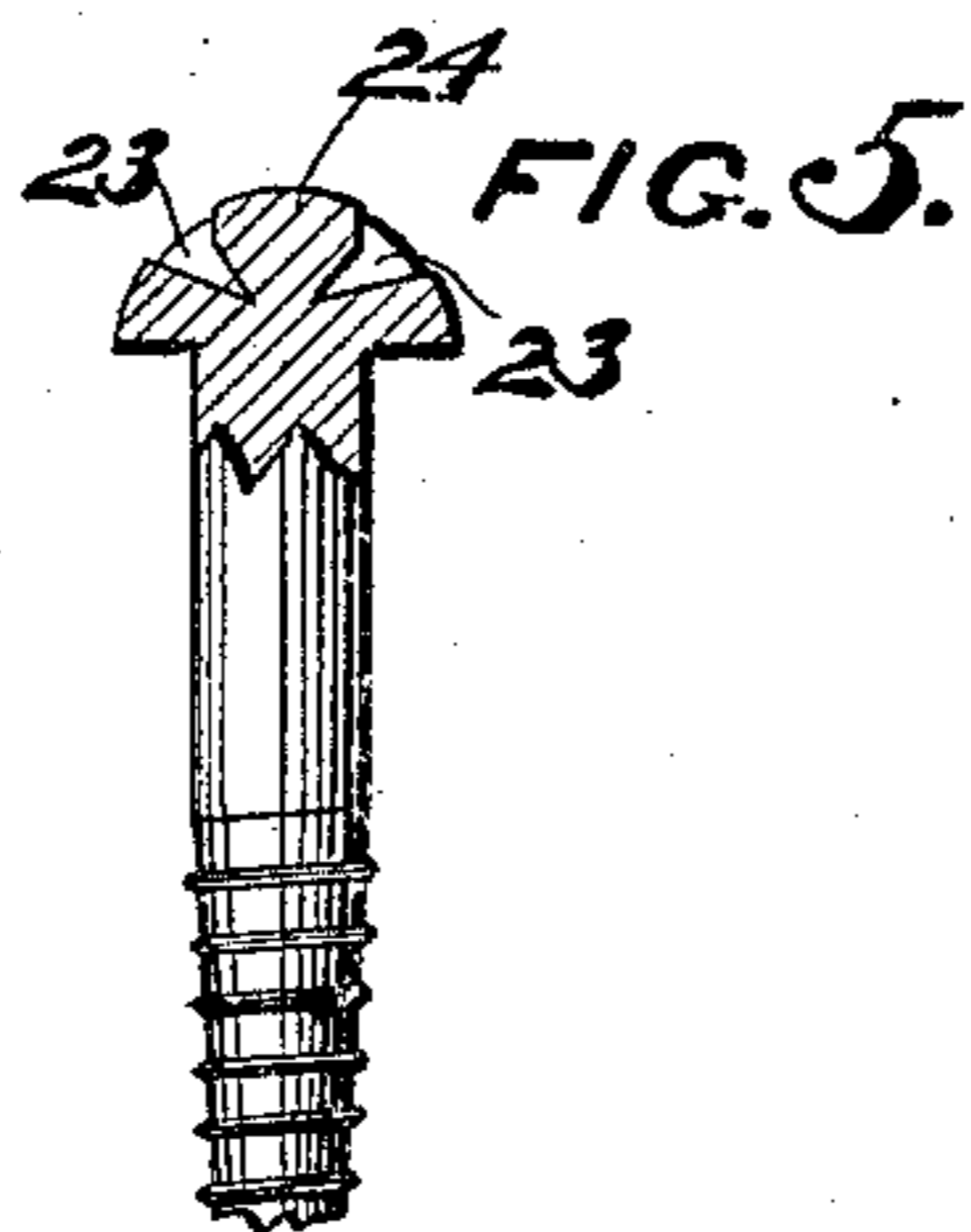
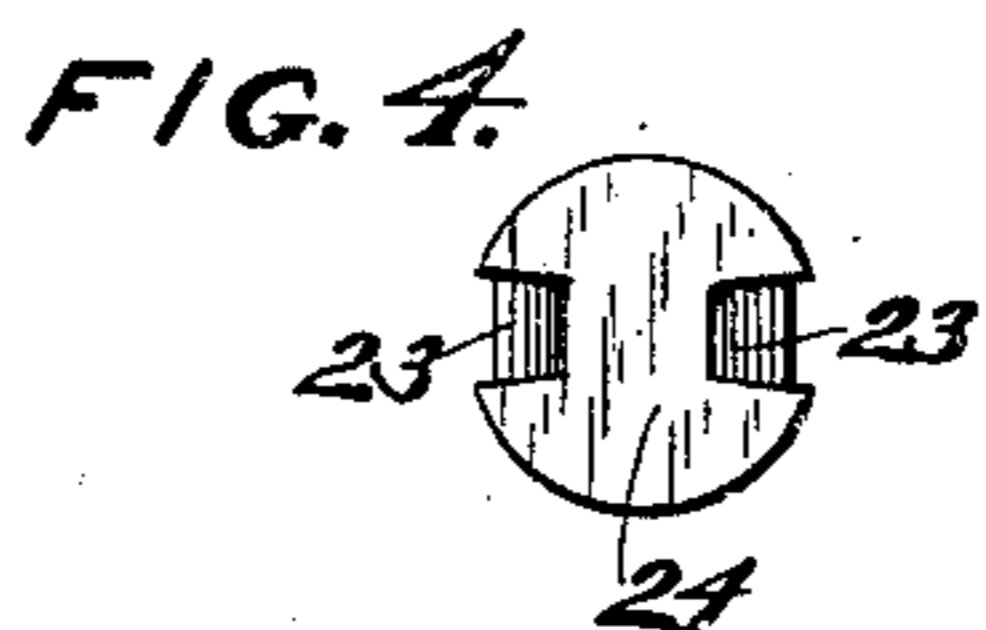
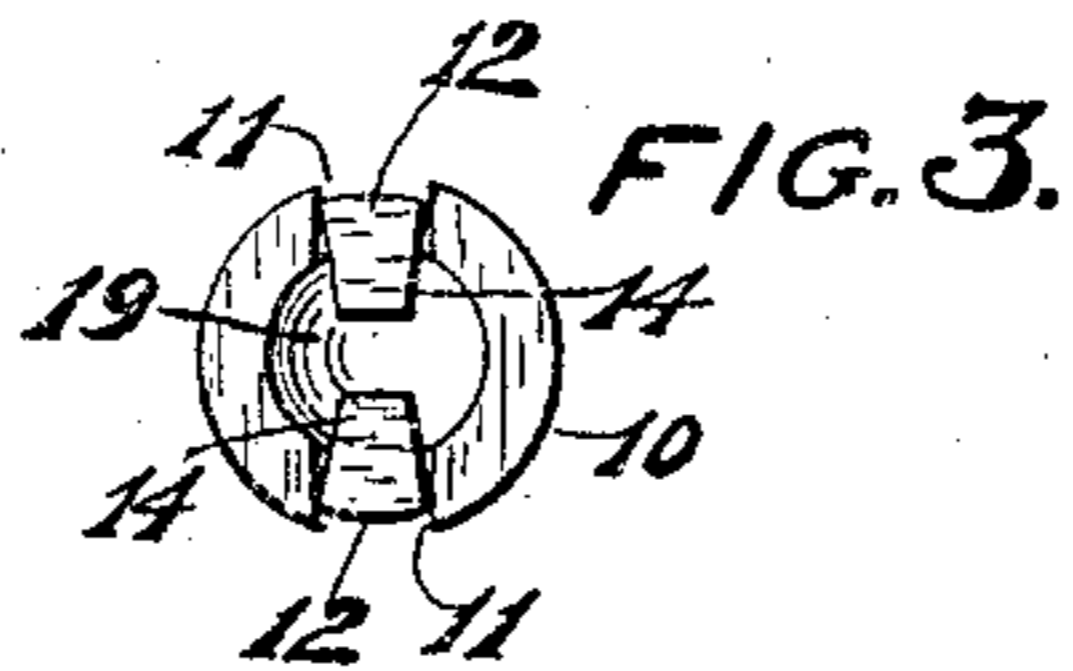
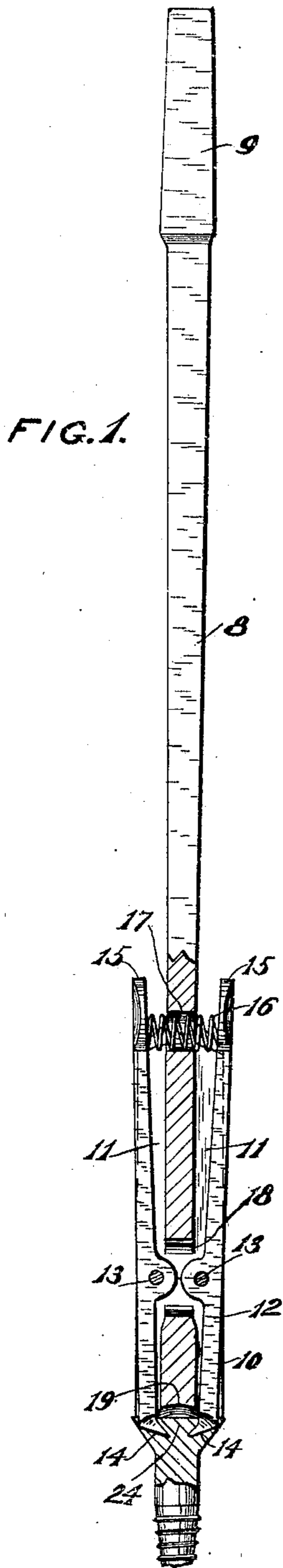


A. N. BENDER.  
SCREW DRIVER.  
APPLICATION FILED SEPT. 28, 1907.

954,073.

Patented Apr. 5, 1910.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

ALBERT N. BENDER, OF RACINE, WISCONSIN, ASSIGNOR OF ONE-HALF TO JOHN C. KLEIST, OF MILWAUKEE, WISCONSIN.

## SCREW-DRIVER.

954,073.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed September 28, 1907. Serial No. 394,967.

*To all whom it may concern:*

Be it known that I, ALBERT N. BENDER, residing in Racine, in the county of Racine and State of Wisconsin, have invented new and useful Improvements in Screw-Drivers, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention relates to improvements in screw drivers.

One of the objects of the invention is to provide a screw driver which will firmly clamp and hold a screw during the operation of driving it.

A further object of the invention is to provide means for securely locking the screw driver to the screw after it has been clamped thereto and thereby remove any possibility of accidental disengagement.

A still further object is to provide a screw driver which may be used for boring holes for countersinking purposes.

With the above, and other incidental, objects in view, the invention consists of the parts, and combination of parts, and all equivalents thereof.

In the accompanying drawings, in which similar characters of reference indicate like parts: Figure 1 represents a side view of my improved screw driver engaging a screw, parts being broken away to show interior construction; Fig. 2 is a view thereof taken at right angles to Fig. 1; Fig. 3 is a view of the clamping end of the screw driver; Fig. 4 is a view of the head of a screw adapted for use with this improved screw driver; Fig. 5 is a view of a fragment of a round headed screw partly in section, also adapted for use with this improved screw driver; and Fig. 6 is a view of a fragment of a modified form of screw driver provided with means for locking the screw clamping jaws to the screws.

Referring to the drawings, the numeral 8 indicates the shank of the screw driver, the upper squared end of which may be connected to a suitable handle, or to any suitable turning device. The lower end of the shank is provided with an enlargement 10 round in cross section and forming the head of the screw driver. The head is provided at diametrically opposite portions thereof with recesses 11, 11 extending longitudinally thereof, and in the recesses are disposed fulcrumed clamping levers 12, 12,

the levers being fulcrumed to the sides of the head forming the recesses by means of pivot pins 13, 13. The lower extremities of the levers are provided with inwardly inclined engaging jaws 14, 14 to conveniently engage a screw particularly constructed therefor. The upper extremities of the levers project out of the recesses and are enlarged and rounded to form finger pieces 15, 15 to manipulate the engaging jaws. A coiled spring 16 passes through an opening 17 in the shank 8 immediately above the head and its opposite ends engage the inner surfaces of the finger pieces of the clamping levers to normally force them outwardly and to move the engaging jaws inwardly. A slot 18 extends through the head of the screw driver adjacent to the pivotal connection of the clamping levers thereto, and provides the necessary space to accommodate the medial enlargement of the levers through which the pivotal pins pass.

The inwardly inclined engaging jaws 14, 14 are wedge shaped and sharpened so as to firmly clamp the head of the screw to the screw driver and also to adapt them for use in boring holes when it is desired to countersink a screw head. The lower end of the head is provided with a concave recess 19 so that the screw driver may engage round headed screws as well as flat headed screws.

It is very convenient at times to be able to lock the engaging levers while engaging a screw, and to accomplish this result I have provided a locking nut 20 threaded to an enlargement 21 disposed above the finger portions of the engaging levers. The lower portion 22 of this locking nut is tapered and the tapered portion is adapted to engage the inner upper edges of the finger pieces and to force them outwardly when the nut is turned downwardly and thus hold the engaging levers in locked engagement with the screw.

This screw driver is particularly adapted for use with a screw provided with two wedge shaped recesses 23, 23 extending inwardly and downwardly toward the diametrical center of the head of the screw, thereby leaving a central undercut connecting portion 24 which adds considerable strength to the head of the screw and prevents a portion of the head breaking off at the slot, as in ordinary screws in which the slot extends entirely across the head.

The undercut portions of the head provide means for engagement with the wedge shaped clamping jaws of the engaging levers to draw the screw wedgingly against the lower end of the head of the driver and to prevent its accidentally becoming disengaged therefrom. A round headed screw may also be provided with these wedge shaped recesses to adapt it for use with the driver as clearly shown in Fig. 5 of the drawings, and the lower end of the driver head is provided with a concave recess to accommodate the rounded portion of the screw head. In operation the finger portions of the engaging levers are pressed together. This movement will open the wedge shaped jaws and permit them to engage the wedge shaped recesses in the head of the screw. By removing the pressure from the finger portions the coiled spring will force them apart and cause the jaws to close and draw the screw head tightly against the end of the head of the driver and will securely hold the screw in this position during the entire operation of driving it home into the material desired.

If it desired to lock the screw to the driver it is only necessary to turn the locking nut downwardly until the tapered end engages the engaging levers. The nut being in the path of movement of the levers will prevent their being accidentally pressed together, and the screw will be securely held between the jaws. It is obvious that the screw driver may also engage a screw which is already in engagement for withdrawal. The

wedge shaped jaws are so shaped that they may be conveniently used for boring a tapered hole when it is desired to countersink the head of a screw.

What I claim as my invention is:

A screw driver, comprising a shank provided with a head of substantially the same diameter as the head of a screw to which it is adapted to engage, and the lower portion of the shank positioned to bear on the upper surface of the screw, longitudinal recesses, transverse openings and an end recess provided in said head, engaging levers disposed within said recesses and being substantially flush with the outer diameter of the head and having a portion extending into one of the openings, said levers being reinforced by the side walls of the recesses, pivot pins pivotally connecting the levers to the head, vertically and horizontally tapering jaws formed on the lower ends of the levers and extending downwardly and inwardly therefrom and adapted to engage the head of a screw disposed in the end recess of the head, said jaws engaging the screw head above the lower surface of the head, and a coiled spring interposed between the upper ends of the levers and extending through one of the transverse openings.

In testimony whereof, I affix my signature, in presence of two witnesses.

ALBERT N. BENDER.

Witnesses:

A. L. MORSELL,  
ANNA F. SCHMIDTBAUER.